Source : www.thehindu.com Date : 2021-06-16

WORLD'S FIRST WOODEN SATELLITE TO BE LAUNCHED FROM NEW ZEALAND

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WISA Woodsat is a 10x10x10 cm nano satellite built up from standardised boxes and surface panels made from plywood | Photo Credit: ESA

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The European Space Agency (ESA) has planned to put the world's first wooden satellite, WISA Woodsat, on Earth's orbit by the end of this year. The mission of the satellite is to test the applicability of wooden materials like plywood in spacecraft structures and expose it to extreme space conditions, such as heat, cold, vacuum and radiation, for an extended period of time.

It will be launched to space by the end of 2021 with a Rocket Lab Electron rocket from the Mahia Peninsula launch complex in New Zealand.

The satellite, designed and built in Finland will orbit at around 500-600 km altitude in a roughly polar Sun-synchronous orbit. WISA Woodsat is a 10x10x10 cm nano satellite built up from standardised boxes and surface panels made from plywood, the same material that is found in a hardware store or to make furniture.

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Designers have placed the wood in a thermal vacuum chamber to keep dry when its in space. They have also added a very thin aluminium oxide layer to minimise vapour coming from the wood and to protect it from erosive effects of atomic oxygen.

Woodsat's only non-wooden external parts are corner aluminium rails used for its deployment into space and a metal selfie stick. The selfie stick with its camera can take pictures of the satellite and look how the plywood is behaving.

It can show if there is any cracking on the plywood or any colour changing as the wood is expected to be darkened by the ultraviolet radiation of unfiltered sunlight, said Jari Makinen, a Finnish writer and broadcaster who initiated the mission.

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"The good thing here is we have ended up devising a low-cost device that could find all kinds of further uses, both in orbit and down on the ground in test environments," said Bruno Bras, materials engineer at ESA.

Fastly, an internet infrastructure company, says the new internet protocol QUIC improves speed and security of data transfer, and has a faster recovery mechanism.

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